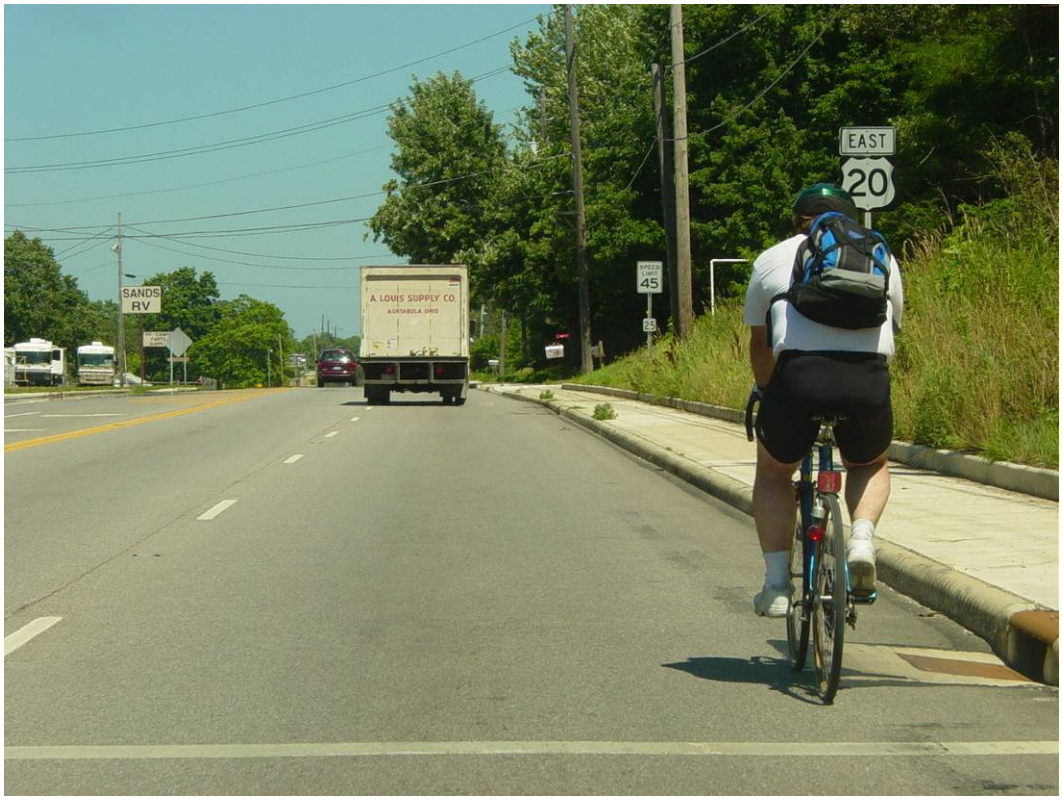
5 Transportation

5.1 Introduction



At a casual glance, it appears that transportation is not a critical issue in Madison Township. There is a perception that congestion is growing, but data from the Northeast Ohio Areawide Coordinating Agency (NOACA) and the Ohio Department of Transportation (ODOT) show little evidence of problems. There are no major intersections or uses that generate large amounts of traffic. Even with what appears like sparse traffic, though, Madison Township still faces challenges regarding transportation.

Traffic generated by poorly planned development, and the lack of bicycle and pedestrian accommodation, can diminish the potential quality of life in the township. A scattered, low-density population results in more roads spread among fewer homes, with property owners facing a larger tax burden for road maintenance compared to more densely populated urban and suburban areas. With limited commercial development, residents face longer vehicle trips for commuting and daily errands, resulting in extra wear and tear on roads, and added air and noise pollution. The township is not alone; other exurban communities in the area face these issues.

Transportation infrastructure is very expensive, especially for a low-density exurban area, and it has major impacts on how residents live. It both influences and is influenced by land development. Future transportation plans must consider a diverse range of users, including residents of all ages and abilities, business commuters, visitors, commercial traffic, and those traveling by foot or bicycle.

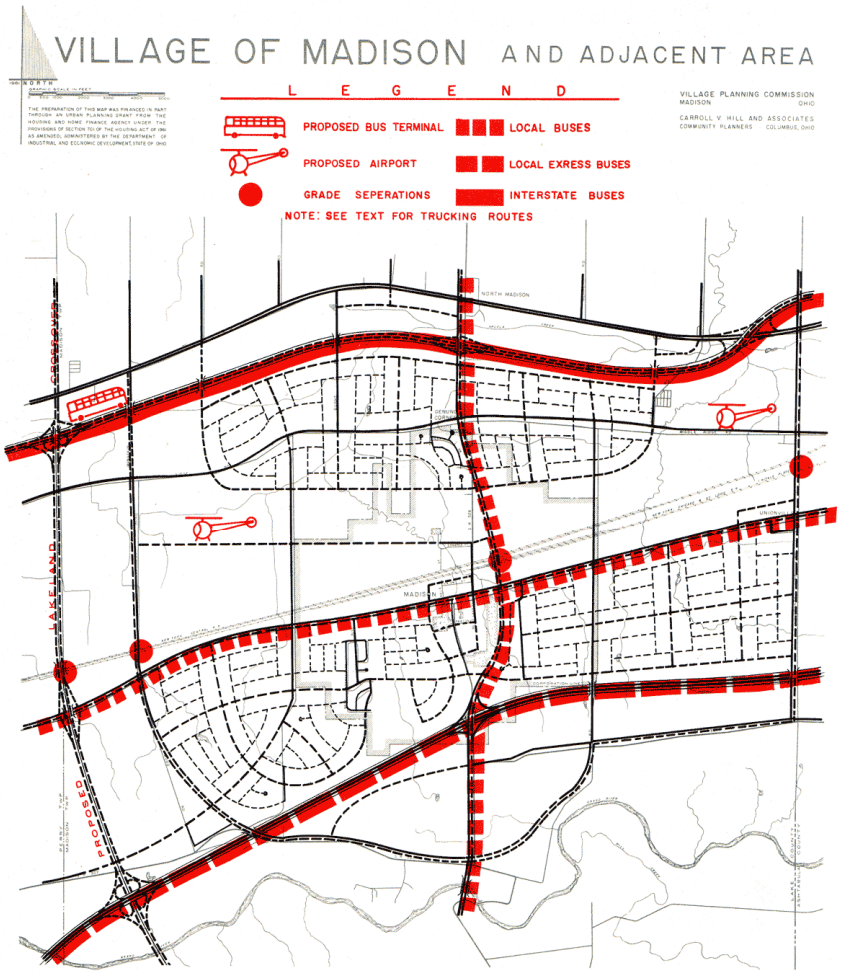
An effective transportation plan should not be measured in how it would potentially decreases travel times or increase traffic speed, but rather how it will shape future development, improve the quality of life for residents, and preserve small-town character. Madison Township is not an island, and transportation planning must consider how roads and trails in the community function as part of a regional transportation network, how traffic from the township affects Madison Village, and vice versa. The Transportation element will evaluate existing conditions, identify challenges, and present goals and policies that address current and future mobility issues in the township.

Many transportation-related issues that are specific to the North Ridge Road/US 20 corridor are addressed in the US 20 Corridor Plan.

5.2 Previous comprehensive plans

1963 COMPREHENSIVE PLAN

The 1963 Madison Village Comprehensive Plan anticipated that Madison Village – and, by extension, Madison Township – would be a much larger community than it is now. The transportation section of the plan included ambitious projects such as a bypass around the village center with a grade-separated railroad crossing, and railroad grade separation for County Line Road and Wood Road, which would be part of a beltway of arterial roads around the village. The village would be surrounded on three sides by limited-access highways. A proposed network of arterial and collector streets would cross the village and extend in all directions into Madison Township. The plan also suggested sites for an airport and intercity bus terminal, and recommended upgrading County Line Road in anticipation of commercial shipping activities at the Madison Dock.

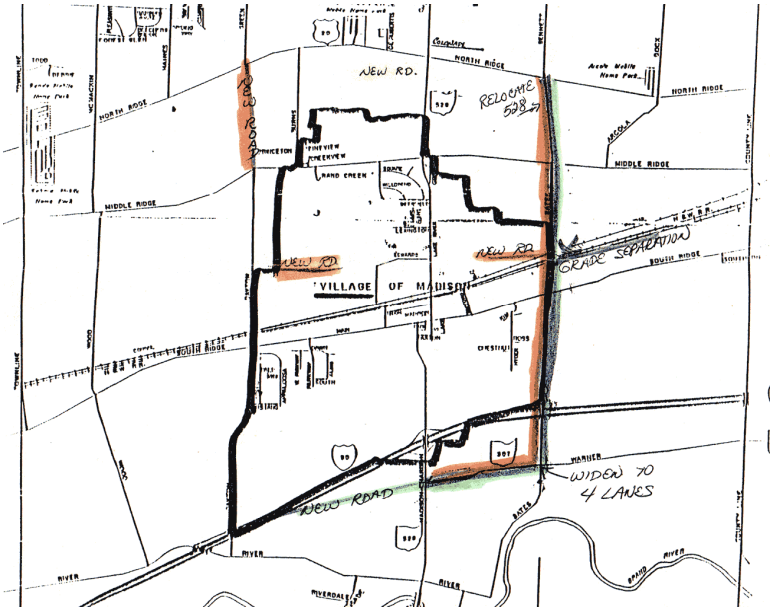


PROPOSED MAJOR TRANSPORTATION FACILITIES

Madison Village never grew to be the satellite city anticipated by the 1963 plan. None of the improvements and projects proposed in the plan were built.

1994 COMPREHENSIVE PLAN

The 1994 comprehensive plan anticipated a large increase in traffic on North Ridge Road/US 20, and recommended a marginal or frontage road south of the Madison Mall. The plan also recommended widening North Rdge Road along the entire route, and the addition of right-turn only lanes at major intersections.



The comprehensive plan recommended relocation of State Route 528 along Warner Road to Bates Road, following Bates north across a new grade-separated overpass of the Norfolk Southern/CSX corridor. Bates Road would meet with Bennett Road at North Ridge Road/US 20. A recommended northward extension of Dayton Road would meet Green Road at North Ridge Road/US 20.

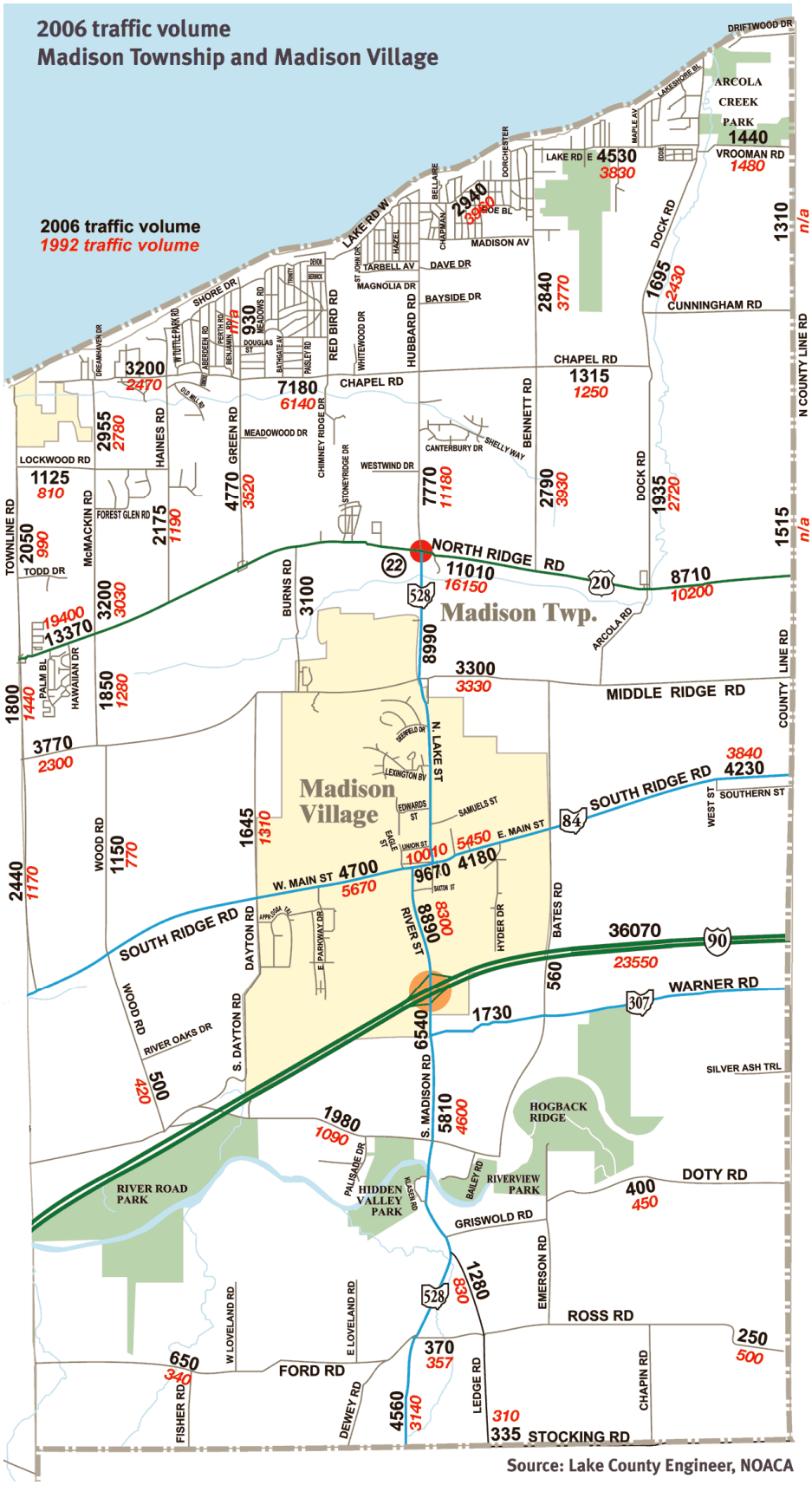
None of the recommendationdations made in the 1994 comprehensive plan were implemented.

5.3 Roads

With the exception of road paving projects and the construction of streets internal to residential subdivisions, the transportation network in Madison Township has changed little through the decades. However, increased vehicle ownership, an influx of new residents who commute to jobs outside the community, retail development to the north in Madison Township, increased interstate trucking activity, and changing lifestyles have all impacted village roads.

TRAFFIC VOLUME

On many collector roads in the township that serve local traffic, traffic volume increased between 1992 and 2006. (Map on page 5-4) Roads experiencing an increase in traffic generally had greater levels of lot split and frontage development activity. Traffic volume should be expected to increase on collector roads.



Source: Lake County Engineer, NOACA

Table 5.1 shows traffic counts along selected road sections on major arterial and collector roads in the township and village, based on data collected in 1992, 1999, 2002 and 2005. Historic data from the 1963 Madison Village comprehensive plan is also included.

Data from the Ohio Department of Transportation shows traffic volume decreasing on North Ridge Road (US 20), State Road 528 north of I-90, and State Road 84, and increasing on State Road 528 south of I-90, Warner Road, and Interstate 90 between 1992 and 2005.

Traffic on US 20 in Madison Township has decreased in recent years, while traffic on Interstate 90 is increasing. Data collected by ODOT suggests that I-90 is increasingly being used for east-west traffic that would otherwise use North Ridge Road/US 20.

Table 5.1
Traffic volume
Madison Township and Village

Road section	*Average daily traffic (ADT)*					
	1960	*1992*	*1999*	*2002*	*2005*	*% change 1992-2005*
North Ridge Road (US 20)						
North Ridge Rd (US 20) Townline Rd to Hubbard Rd	6,480	17,640	15,530	14,280	13,370	-24.2%
North Ridge Rd (US 20) Hubbard Rd to Dock Rd	6,190	15,620	11,030	11,280	11,010	-29.5%
North Ridge Rd (US 20) Dock Rd to County Line Rd	n/a	10,150	9,510	9,360	8,710	-14.2%
South Ridge Road, Main Street (OH 84)						
South Ridge Rd (OH 84) Townline Rd to Dayton Rd	2,030	4,960	4,280	4,320	4,130	-16.7%
Main St (OH 84) Dayton Rd to River St (OH 528)	*2,850*	*5,670*	*5,980*	*4,130*	*4,700*	*-17.1%*
Main St (OH 84) River St to Lake St (OH 528)	*4,160*	*10,010*	*8,160*	*9,800*	*9,670*	*-3.4%*
Main St (OH 84) Lake St (OH 528) to Bates Road	*2,120*	*5,450*	*4,080*	*4,810*	*4,180*	*-23.3%*
South Ridge Rd (OH 84) Bates Road to County Line Rd	1,340	3,840	4,010	4,250	4,230	10.2%
Warner Road (OH 307)						
Warner Rd (OH 307) east of River St (OH 528)	*460*	*1,390*	*1,220*	*3,050*	*1,730*	*24.5%*
Hubbard Road, Lake Street, River Street, South Madison Road (OH 528)						
Hubbard Rd (OH 528) North Ridge Rd to Middle Ridge Rd	3,470	10,360	9,090	9,110	8,990	-13.2%
Lake St/River St (OH 528) Middle Ridge Rd of Main St (OH 84)	*3,850*	*10,030*	*9,090*	*9,110*	*8,990*	*-10.4%*
Lake St/River St (OH 528) Main St (OH 84) to I-90	*3,020*	*10,030*	*9,090*	*10,040*	*8,990*	*-10.4%*
River St (OH 528) I-90 to Warner Rd	*1,850*	*5,310*	*5,840*	*6,180*	*6,540*	*23.2%*
South Madison Rd (OH 528) Warner Rd to Ledge Rd	1,190	4,190	5,760	6,070	5,810	38.7%
South Madison Rd (OH 528) Ledge Rd to Stocking Rd	n/a	3,140	3,950	4,540	4,560	45.2%
Interstate 90						
I-90 west of River St (OH 528)	5,320	27,040	32,910	33,270	38,970	44.1%
I-90 east of River St (OH 528)	5,620	24,280	33,040	31,340	36,070	48.6%

Italics: road sections in Madison Village
(Ohio Department of Transportation)

Between 1992 and 2005 there was little change in the percentage of heavy truck traffic (Class B and C) on most roads in the township where traffic counts were conducted. Class B and C vehicle traffic on South Madison Rd/OH 528 between Warner Road and Ledge Road increased from 5.7% to 8.2%. Despite the shift of traffic from North Ridge Road/US 20 to Interstate 90, there was almost no change in the percentage of heavy truck traffic on North Ridge Road/US 20 between 1992 and 2005.

During the same time, on the majority of roads in the village where traffic counts were conducted, the percentage of heavy truck traffic increased. (Table 5.2). The largest increases were recorded on River Street south of Interstate 90, and Main Street west of River Street/OH 528.

Table 5.2
Traffic volume – vehicle type
Madison Township and Village

Road section	*Average daily traffic (ADT): Class B and C*			
	1992	*% 1992*	*2005*	*% 2005*
North Ridge Road (US 20)				
North Ridge Rd (US 20) Townline Rd to Hubbard Rd	410	2.3%	310	2.3%
North Ridge Rd (US 20) Hubbard Rd to Dock Rd	480	3.1%	340	3.1%
North Ridge Rd (US 20) Dock Rd to County Line Rd	430	4.2%	360	4.1%
South Ridge Road, Main Street (OH 84)				
South Ridge Rd (OH 84) Townline Rd to Dayton Rd	200	4.0%	120	2.9%
Main St (OH 84) Dayton Rd to River St (OH 528)	240	4.2%	310	6.6%
Main St (OH 84) River St to Lake St (OH 528)	390	3.9%	380	3.9%
Main St (OH 84) Lake St (OH 528) to Bates Road	80	1.5%	130	3.1%
South Ridge Rd (OH 84) Bates Road to County Line Rd	160	4.2%	180	4.3%
Warner Road (OH 307)				
Warner Rd (OH 307) east of River St (OH 528)	70	5.0%	100	5.7%
Hubbard Road, Lake Street, River Street, South Madison Road (OH 528)				
Hubbard Rd (OH 528) North Ridge Rd to Middle Ridge Rd	360	3.5%	400	4.4%
Lake St/River St (OH 528) Middle Ridge Rd to Main St (OH 84)	360	3.5%	400	4.4%
Lake St/River St (OH 528) Main St (OH 84) to I-90	430	5.7%	500	5.6%
River St (OH 528) I-90 to Warner Rd	340	6.4%	460	7.0%
South Madison Rd (OH 528) Warner Rd to Ledge Rd	240	5.7%	480	8.2%
South Madison Rd (OH 528) Ledge Rd to Stocking Rd	170	5.4%	240	5.3%
Interstate 90				
I-90 west of River St (OH 528)	7,440	2.8%	10,530	3.7%
I-90 east of River St (OH 528)	7,350	3.0%	10,520	3.4%

Italics: road sections in Madison Village
(Ohio Department of Transportation)

RAILROAD GRADE CROSSINGS

Since the construction of the Cleveland, Painesville and Ashtabula Railroad in 1851, Madison Township has been bisected by a busy railroad corridor. The two-track CSX Erie West Subdivision and single-track Norfolk Southern Lake Erie District lines cross Wood Road, Dayton Road, Lake Street, Bates Road, and County Line Road at grade.

116 scheduled trains per day – an average of one every twelve minutes – pass through the township and village. (Table 5.3) Railroad traffic is expected to increase as global trade and the use of intermodal (travel trailer to train) shipping continues to grow.

The noise and vibration caused by heavy rail traffic could make increased residential development in some areas near the rail corridor impractical.

Table 5.3
Railroad crossings
Madison Township and Village

Street	AARDOT	Warning devices			Through trains			Road ADT
		Crossbucks	Lights	Gates	Day	Switching	Night	
Wood Road/LC 43 (NS)	472023J	4	4	2	11	0	11	1,150
Wood Road/LC 43 (CSX)	523821A	4	4	2	47	8	11	* 600
Dayton Road/LC 41 (NS)	472018M	4	4	3	11	0	11	* 1,645
Dayton Road/LC 41 (CSX)	523828X	4	4	3	47	8	38	* 890
Lake Street/OH 528 (NS)	472017F	2	2	4	11	0	11	8,990
Lake Street/OH 528 (CSX)	523829E	2	2	2	47	8	39	8,990
Bates Road/LC 25 (NS)	472015S	2	2	4	11	0	11	975
Bates Road/LC 25 (CSX)	523830Y	2	2	2	47	8	39	975
County Line Road (NS)	472013D	2	2	2	11	0	11	2,915
County Line Road (CSX)	n/a	n/a	n/a	n/a	47	8	38	n/a

* Inconsistent data; per RRIS Crossing Information Inventory. (Ohio Rail Development Commission)

Between January 1978 and April 2007, there were 23 train-vehicle collisions on the three grade crossings in the village. Accidents resulted in four injuries and three deaths. (Table 5.4)

Table 5.4
Railroad crossing accidents 1978-present
Madison Township and Village

Street	AARDOT	Accidents	Injuries	Deaths
Dayton Road/LC 41 (NS)	472018M	7	1	1
Lake Street/OH 528 (NS)	472017F	4	1	0
Bates Road/LC 25 (NS)	472015S	1	1	0
Dayton Road/LC 41 (CSX)	523828X	4	1	1
Lake Street/OH 528 (CSX)	523829E	2	0	1
Bates Road/LC 25 (CSX)	523830Y	5	unavailable	unavailable
Wood Road/LC 43 (NS)	472023J	4	2	2
Wood Road/LC 43 (CSX)	523821A	1	0	0
County Line Road (NS)	472013D	3	1	2
County Line Road (CSX)	n/a	unavailable	unavailable	unavailable

Specific accident data for AARDOT 523830Y and the County Line Road CSX crossing is unavailable. (Federal Railroad Administration)

IMPACT OF FRONTAGE DEVELOPMENT

The normal pattern of residential development on most longer arterial and collector roads in the township is the subdivision of large but narrow lots with frontage on the existing road. Such development affects the township road system in several ways.

- The many individual driveways create points of conflict that make the road less safe for pedestrians, cyclists and drivers. (See the access management section for more details.)
- A single family house generates an average of 9.6 vehicle trips per day. Property owners at the end of arterial and collector roads closer to the village face a heavier share of traffic on the road, generated by residential frontage development at the far end of the roads.
- The land division pattern makes it difficult to create connecting north-south or east-west roads, or develop interior land, without demolishing houses.
- The cost of development shifts from the builder, who would normally be required to build roads in a subdivision, to the village, which built the existing road where the lot has frontage. The township and county essentially subsidizes frontage development.

Working with the Lake County Planning Commission and their Subdivision Regulations, the Township could help implement more flexible street design standards. For instance, allowing

narrower pavement width for streets that will serve few houses, thus decreasing the cost of developing away from existing through streets.

The plan also recommends making new residents on arterial and collector roads aware that they live on what is intended to be a through street – not a residential road – and there is no guarantee traffic volume will remain low in the future.

PERCEPTIONS OF TRAFFIC CONGESTION

There is a perception among many township residents, and those living in nearby communities, that traffic congestion is a growing problem in the area. Solutions suggested by those attending comprehensive plan committee meetings include overpasses, bypasses, and frontage roads; improvements normally seen only in heavily developed congested urban and suburban areas.

According to data from NOACA and ODOT, no roads in Madison Township are considered congested. The amount of traffic carried on four-lane North Ridge Road and two-lane Hubbard Road/Lake Street is lower than the majority equivalent roads in the region, and roughly equal to busier two lane roads in the area. Traffic volume on the roads is below capacity for lower levels of service. However, the roads are not without other issues.

Why do some residents feel traffic is congested and generally bad, when the reality is different? The rural setting of the Township may play a role in how traffic is perceived. What appears to be freeflowing traffic to an urban or suburban resident, a traffic engineer, or a planner, may be seen as congestion in the eyes of those living in eastern Lake County. In an exurban area such as eastern Lake County, residents may have the expectation that traffic will reflect their low-density, semi-rural/semi-suburban surroundings, and be scattered and light. Anything more might be perceived as “congestion”, even if there are few traffic delays, because it seems out of context with an environment. Residents also spend more time in their cars than those in more densely populated areas, so they may have more exposure to traffic problems. Whether or not congestion actually exists, the perception of it affects how residents feel about their quality of life.

Building improvements such as frontage roads, bypasses and multi-lane arterials to provide relief for sporadic traffic problems risk the creation of induced demand. The addition of road capacity can spur new development, which would generate additional traffic, causing the road to become congested again.

5.4 Comprehensive plan committee desired improvements

The results of a transportation workshop held with the Madison Village/Madison Township Comprehensive Plan Committee are a “wish list” of future road improvement projects for the village and township.

RAILROAD GRADE-SEPARATED CROSSING

For several decades, a grade-separated rail crossing has been a desire of both Madison Village and Madison Township officials. The 1963 Comprehensive Plan proposed grade-separated railroad crossings for County Line Road and Wood Road, and a grade-separated crossing on a new bypass that would be routed east of Lake Street and River Street. The consensus in contemporary railway design is to avoid the use of grade-crossings. A grade-separated crossing was considered a high priority among those in the Comprehensive Plan Committee.

There are several geometric and siting issues that make a grade-separated crossing difficult in Madison.

- At Townline Road and Wood Road, low traffic volume cannot justify the expense of bridging the CSX and Norfolk Southern tracks.
- At Dayton Road, the railroad crossing is about 550 feet from Main Street, which would require a very steep grade (5% or more) to provide a 22.5 feet meter overhead clearance. Heaver vehicles would likely avoid such a steep grade in favor of existing, more accessible crossings.
- At Lake Street, the embankment necessary for a grade-separated crossing would require the demolition of many residential, commercial and industrial structures in the heart of Madison Village, and prevent access to many businesses along the road. The location is ideal, but the necessary property acquisition makes it impractical.
- At Bates Road, low traffic volume makes justification of the expense of grade-separation difficult. The cost of crossing at Bates Road would be much higher than at other points, because the rights-of-way of the CSX and Norfolk Southern are about 350 feet apart, requiring a longer bridge. It would also increase traffic on a road that is lined with residential frontage development.
- At County Line Road, low traffic volume, the need for a steep grade from Middle Ridge Road (6% or more), and separation of the CSX and Norfolk Southern rights-of-way make a crossing at this point impractical.

A bypass through Madison Village following the route suggested in the 1963 plan would be difficult to build today; barriers include the Fairview Cemetery, Madison Educational Campus, Huntington Woods subdivision, and Lake County Engineer Madison Garage on Samuel Street.

Continuing River St. north of Main Street in Madison Village also presents numerous barriers; commercial structures on Main Street, a small stream that flows to Arcola Creek, industrial development on Edwards Street, and a large patio home development.

The cost of grade separation projects similar to what could be built in Madison ranges from $5 million to $15 million.

Ohio is one of the first states in the nation to establish a successful program to specifically address rail/highway grade separation projects. The Rail Grade Separation Program is a 10 year, $200 million program established in 2000 by the Ohio Department of Transportation (ODOT) and the Ohio Rail Development Commission (ORDC). The program addresses safety, mobility and economic development concerns for Ohio's local communities. The Rail Grade Separation Program provided $3.6 million for the construction of the $13.9 million Heisley Road rail crossing in Mentor. A crossing at Lake Street would meet the program goals – more than 30 trains a day, and more than 1,000 vehicle trips per day – but the demolition and property acquisition required makes it an unattractive option.

This plan recognizes the obvious benefits of a grade-separated rail crossing – increased safety, smoother traffic flow, and uninterrupted access for emergency vehicles – and endorses a crossing where it would be practical, and where it would preserve the integrity and commercial vibrancy of the historic village center. However, geometric, siting, and financial obstacles at each potential crossing point in Madison Village and Madison Township make it

impractical to bridge the CSX and Norfolk Southern tracks. This plan recommends improving existing grade crossings, including signage, lighting, pavement markings, wayside horns, and use of barriers that prevent drivers from circumventing the gates (StopGate and similar systems), to reduce the risk of accidents and fatalities. Considering siting issues detailed previously, Bates Road is the most suitable candidate for a future grade crossing.

One advantage of frequent rail traffic and the inconvenience of at-grade crossings: it can limit through traffic by trucks, and thus provide a form of traffic calming.

LAKE STREET / HUBBARD ROAD WIDENING

Along with Interstate 90 and North Ridge Road/US 20, Lake Street is one of the heaviest traveled roads in Madison Village and Madison Township. Lake Street/Hubbard Road serves as the primary arterial connecting residential areas in North Madison with I-90, and residential areas in Madison Village and the south end of Madison Township with retail areas along North Ridge Road/US 20. The Comprehensive Plan committee expressed support for improving Lake Street to better accommodate additional traffic.

Although traffic volume on Interstate 90 has increased from the time it was dedicated, in recent years traffic volume on Lake Street actually fell; from 10,030 vehicles per day in 1992 to 8,990 in 2005. Of the 2,305 road segments cataloged in the Northeast Ohio Areawide Coordinating Agency (NOACA) Traffic Congestion System, segments of Lake Street ranks among the least congested, from 1,805 to 2,019; and its vehicle-to-capacity ratio is among the lowest in the region.

Increasing the capacity of Lake Street/Hubbard Road could affect River Street, the link between Lake Street, the Madison Village core, and I-90. River Street is an important gateway to Madison Village, and visually reinforces its “quaint” character. For much of its length between I-90 and the village center, River Street is lined with historic single-family houses. Improvements to River Street to accommodate increased traffic could harm its unique visual qualities and residential nature.

R.W. PARKWAY EXTENSION

R.W. Parkway, a new addition to the Madison Village street grid, is intended to provide access to properties adjacent to I-90 near River Street/OH 528, and promote the development of commercial, industrial and service uses near the Interstate exit. The Comprehensive Plan committee supported extending Water Tower Drive from River Street/OH 84 east to Bates Road.

Greater connectivity promotes mobility and reduces congestion by providing multiple routes of travel. Connecting the eastern end of Water Tower Drive to Bates Road would improve connectivity, and provide better access to businesses. The perceived shortcomings of extending R.W. Parkway– traffic may increase slightly on Bates Road, and decrease slightly on Main Street in the village center – are outweighed by the benefits of increased connectivity.

Federal Highway Administration (FWHA) policy for additional interchanges onto Interstate Highways

It is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility. Adequate control of access is critical to providing such service. Therefore, new or revised access points to the existing Interstate System should meet the following requirements:

1. The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.

2. All reasonable alternatives for design options, location and transportation system management type improvements (such as ramp metering, mass transit, and HOV facilities) have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

3. The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based on an analysis of current and future traffic. The operational analysis for existing conditions shall, particularly in urbanized areas, include an analysis of sections of Interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access points.

4. The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purpose access for transit vehicles, for HOV's, or into park and ride lots may be considered on a case-by-case basis. The proposed access will be designed to meet or exceed current standards for Federal-aid projects on the Interstate System.

5. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate, the applicable provisions of 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

6. In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive Interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.

7. The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the development and related or otherwise required transportation system improvements.

8. The request for new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.

SECOND INTERSTATE 90 EXIT

Some members of the Comprehensive Plan Committee were enthusiastic about an additional exit on Interstate 90 in Madison Township, either in the vicinity of Wood Road/River Road, at Bates Road, or at County Line Road. Justification of a second exit ranged from promotion of economic development to homeland security.

As with a grade-separated railroad crossing, there are many physical, geometric, economic and political barriers that would make such a project difficult to build.

- Extension of Townline Road south to I-90 would require a multi-million dollar high level bridge crossing the Grand River gorge to access areas to the south. The new road would intrude onto the River Road Metropark property. The terrain of surrounding land is not amenable to industrial or commercial development. The exit location would conflict with the Leroy Township comprehensive

plan, which recommends limited development and accessibility at the eastern end of the township.

- Extension of Wood Road south to I-90, as with Townline Road, would require an expensive high level bridge across the Grand River. The road would intrude onto the River Road Metropark and Camp Stony Glen property. River Road is very close to I-90 where it meets Wood Road, and building an exit from and entrance to the westbound lanes of I-90 would require a massive realignment of River Road to the north.
- An exit at River Road would be nearly impossible to build, because of the angle at which it crosses I-90, and the nearby presence of the intersection with Dayton Road.
- An exit at Bates Road would be less than one mile from the existing exit at River Street (OH 528); closer than even the recommended minimum spacing for Interstate exits in urban areas.
- County Line Road is a dirt road south of South Ridge Road.

All the suggested locations, except Townline Road, are less than three miles from the current exit at River Street. Interstate Highway standards recommend minimum spacing of three miles between exits in rural areas.

Traffic generated by additional exits would be disruptive to residents along affected roads, and exacerbate urban sprawl in the region by opening land located away from utility lines, schools, and retail centers, much of it with established agricultural uses, to development. Much of that development would likely be frontage subdivision.

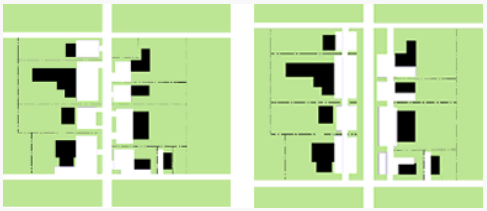
A second exit may also "dilute" the already limited market for commercial and industrial sites near the current River Road/OH 528 exit in Madison Village. There is also a surplus of commercial and industrial zoned land in Madison Village and Madison Township. The addition of more commercial and industrial zoned land could further depress land values, and harm efforts by the village to develop the area near Water Tower Drive and the existing Interstate 90 exit.

What is access management?

Access management is a group of strategies, tools, and techniques that work to improve the safety and efficiency of roads – not by adding lanes but by controlling where vehicles can enter, leave and cross a road.

For example, consider a commercial strip that has developed over several decades along both sides of a four lane road. Without access management, the businesses with frontage on the road would all have individual curb cuts for their driveways that let drivers get into their often small parking lot. People trying to pull off the street would slow traffic behind them, and if turning left across the oncoming traffic lane, a number of risks arise.

- To cars in the oncoming lane, or cars slowing behind the turning vehicle, who risk accidents.
- To pedestrians trying to walk along the road, at risk when they cross a driveway.
- To bicyclists riding along the shoulder, facing risk as traffic behind the turning vehicle try to use the shoulder to get around the bottleneck.



(Access Management Guidebook, Humstone and Campoli, 1996)

Multiply this by 100 businesses, and there can be a real mess. Safety would be highly compromised, and the resulting traffic snarls frustrate shoppers and commuters alike. The many driveways also reduce the space that could be devoted to landscaping, making the area less attractive. Everyone loses: businesses, residents, and travelers.

This is the situation today along US 20 in eastern Lake County.

Access management is one solution to this problem. It helps residential developers build safer neighborhoods. It offers ways to group businesses, their customer access, and their parking lots together, reducing costs and maximizing efficiency. It facilitates left turning without slowing traffic or compromising safety. It makes roads safer and more inviting for drivers, pedestrians, and cyclists. It also increases traffic capacity, without having to spend millions to add lanes or build frontage roads.

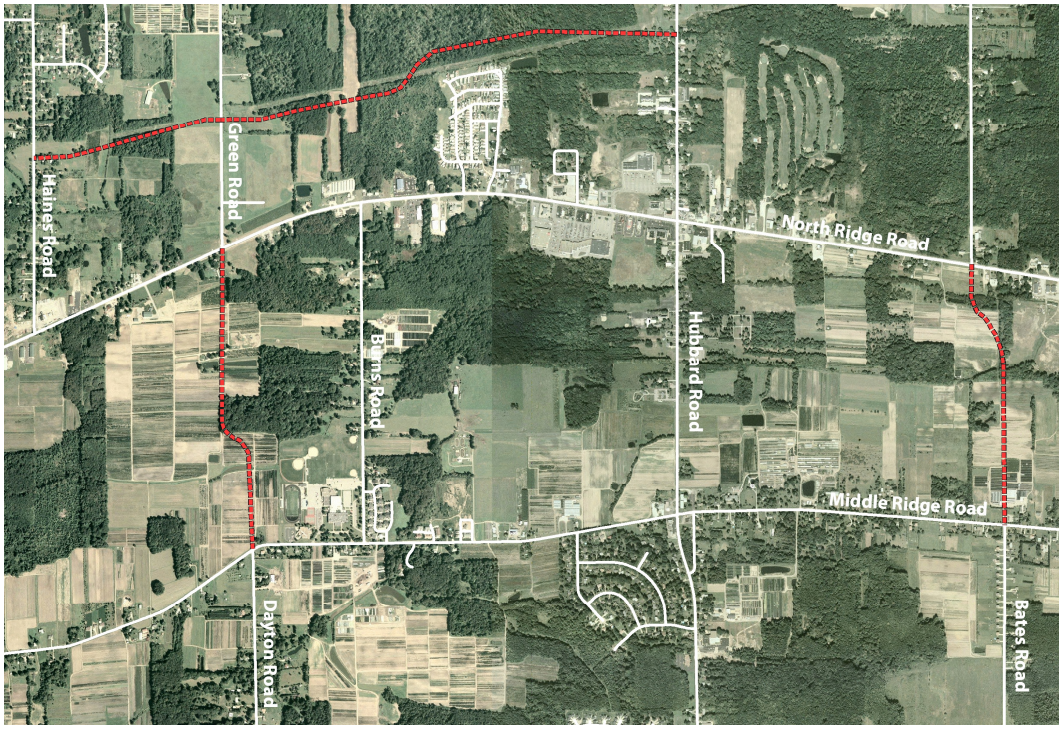
The limited benefits provided by a second exit are far outweighed by its economic, social and environmental costs. This plan does not recommend any additional exits on I-90 in Madison Township or Madison Village.

EAST – WEST CONNECTOR

Previous township plans have consistently identified a east – west arterial connector on the south side of North Ridge Rd. This location has severe environmental constraints due to the Arcola Creek riparian corridor. This plan recommends relocating the proposed road to the north side of Route 20 connected Haines Road to Hubbard Rd. The First Energy high tension line corridor area would be an ideal location. Fewer natural obstacles and the deep commercial zoning depths along North Ridge Road make this a more feasible alternative, if needed.

BATES ROAD AND DAYTON ROAD EXTENSIONS

The 1994 comprehensive plan recommended the extension of Bates Road north past its current terminus at Middle Ridge Road, to connect with North Ridge Road/US 20 at the intersection with Bennett Road. The plan also recommends extension of Dayton Road north past Middle Ridge Road, to connect with North Ridge Road/US 20 at Green Road.



Madison Township has several roads that cross the township east to west, but only State Route 528 (Hubbard Road, Lake Street, River Road, South Madison Road) crosses the township north to south, interrupted only by a one-block jog at Main Street in Madison Village. Additional north-south connections in the township can provide alternate routes of travel to area residents, and provide relief to traffic on State Route 528.

There can be many shortcomings with new roads, however. The extension of Bates and Dayton will provide access to the interior of agricultural parcels, resulting in increased conversion of farms and nurseries to residential use. With no change in the underlying zoning or subdivision regulations, frontage development will continue onto the new roads; development that is subsidized by the county or township if they fund road construction.

This plan recommends the extension Bates Road and Dayton Road from Middle Ridge Road to North Ridge Road/US 20. However, the extensions should be built by private developers, in conjunction with subdivision activity or a larger planned community. Bates Road and Dayton Road should not be extended with the intent of promoting speculative development. Bates Road and Dayton Road should be extended only when a portion of State Route 528 north of Madison Village is declared congested by the NOACA congestion management system. Lot splits, subdivision or development that is sited or planned in a manner that would prevent the extension of Bates Road and Dayton Road must not be permitted.

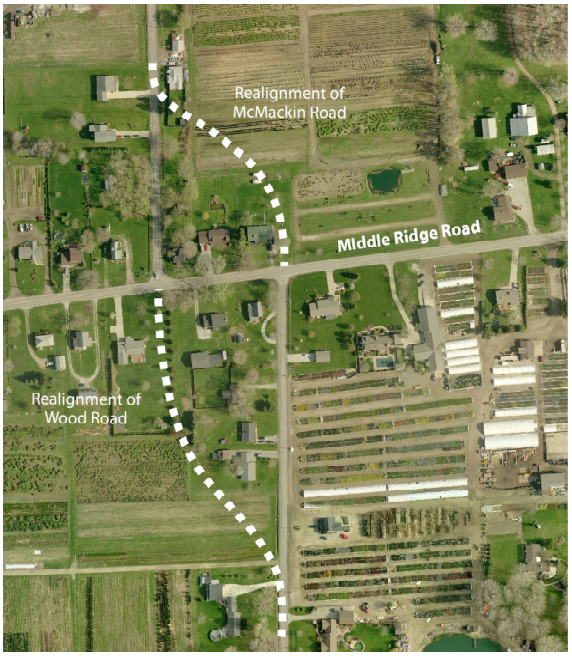
DOCK ROAD/ARCOLA ROAD CONNECTION

Dock Road and Arcola Road by approximately 30 feet where they meet North Ridge Road. While traffic counts are relatively low on both north – south roads, future plans should consider realignment. This would require the demolition of one structure at the Arcola Road / North Ridge Road intersection.

WOOD ROAD/McMACKIN ROAD CONNECTION

Wood Road and McMackin Road are offset by about 300 feet where they meet Middle Ridge Road. The comprehensive plan committee suggested realigning either Wood Road or McMackin Road so the roads connect at an intersection on Middle Ridge.

Traffic volume on both Wood Road and McMackin Road is low, but growing. In 2006, the traffic volume on Wood Road is 1150 vehicles per day, up from 770 in 1992. On McMackin Road, traffic volume is 1850 vehicles per day, up from 1280 in 1992.



Realigning McMackin Road would require the demolition of one house on Middle Ridge Road. Realigning Wood Road would not require the demolition of any residences, but may place houses very close to the right-of-way of the realigned road. Realignment of either road may remove some agricultural land from production.

This plan recommends the realignment of Wood Road to meet McMackin Road at Middle Ridge Road only when traffic volume and safety warrant the improvement.

5.5 Access management

Businesses along most arterial and collector roads in Madison Township usually have unfettered access to the road. Businesses often have two or more driveways or curb cuts from the street to provide access. Many businesses along the road have continuous curb cuts, where the pavement of a business parking lot will meet the road surface along the entire frontage, with no landscape buffer or physical barrier separating them. This causes the street, parking lot, and sidewalk to bleed together as a mass of pavement. Continuous curb cuts create a very unsafe pedestrian environment, because vehicles can cross a pedestrian path

Poor access management: continuous curb cut

anywhere. Continuous curb cuts make it difficult for a driver to find the correct entrance to a business. They also increase stormwater runoff and eliminate any visual buffer between the street and a building. Many access problems are the result of subdivision, zoning and site planning requirements and practices in the past.

Houses on lots fronting on long collector roads usually have their own driveways. The proliferation of driveways is a result of the land division pattern in the Township; narrow lots fronting on collector roads are split off from larger lots. Over time, this development pattern results in a row of houses (and driveways) along a road, behind which is the large undeveloped portion of the original lot. As in commercial areas, the large amount of driveways accessing collector roads can be a safety issue, to both drivers and pedestrians.

With the exception of State guidelines, Madison Township now has no access management policy or requirements. Access management is a process for providing access to land development, while preserving traffic flow on surrounding roadways in terms of safety, capacity, and speed. This is done by managing location, design and operation of driveways,

median openings, and street connections along a road. It also includes use of dedicated turn lanes or bypass lanes, to keep turning vehicles from blocking through traffic.

Access management is used to improve vehicular and pedestrian safety, maintain road capacity and reduce congestion, and enhance community character and aesthetics.

By maintaining the capacity and level of service of the road, access management protects the substantial public investment in transportation, and reduces the need for expensive improvements. Studies conducted in Florida and Colorado suggest that poor spacing, design, and location of driveways lower average travel speed, and improvements in access management can increase roadway capacity. Research has also shown that access management helps reduce the rate and severity of traffic accidents. Good definition and spacing of driveways also improves pedestrian and bicycle safety, by reducing the potential for conflicts with turning vehicles.

From a land development perspective, access management requirements further the orderly layout and use of land. The quality of site access is also important to the success of a development project. The Urban Land Institute Shopping Center Development Handbook warns that poorly designed entrances and exits not only present a traffic hazard, but also cause congestion that can create a poor image of the center. Reducing the number and frequency of driveways and median openings also improves the appearance of major corridors. More land is freed for landscaping, the visual dominance of paved areas is reduced, and scenic or environmental features can be protected. Access management requires coordination of land use and transportation objectives. The Township can work with Lake County to examine the feasibility of access management regulation in Madison. Access management techniques usually include the following:

- Regulation of driveway spacing, corner clearance, and sight distance.
- Increased minimum lot frontage and setback requirements along thoroughfares.
- Restriction on the number of driveways for existing lots, and consolidating access wherever possible.
- Requirements for driveway design elements and conditions requiring their use.
- Requiring internal connections, unified circulation and parking plans between adjacent properties.
- Treating properties under the same ownership and those developed as a unified project as one property for the purpose of access control.
- Using frontage and rearage roads to serve as a common access drive for properties along a corridor.
- Restriction of flag lots and regulate private roads and access easements.
- Minimizing commercial strip zoning and promote mixed use and flexible zoning.
- Minimizing casual lot splits to prevent access and right-of-way problems.

DRIVEWAY LOCATION AND DESIGN

Driveway location and design affects the ability of a driver to safely and easily enter and exit a site. If not properly placed, exiting vehicles may be unable to see oncoming vehicles and motorists on the Redundant driveways along Township roads add points of conflict that make traffic patterns unpredictable, increase the risk of accidents, and contribute to traffic delays. If the turning radius and width are very wide, fast maneuvers on and off the site pose safety hazards for pedestrians, bicycles, and vehicles. Without an adequate throat or stacking lane, vehicles may block traffic while waiting to enter a site, or block parking rows while waiting to leave.

Driveway location and design can be regulated by amending parking lot design standards in the zoning code.

DRIVEWAY NUMBER AND SPACING

There are too many driveways that access North Ridge Road/US 20, Hubbard Road/OH 528, and other arterial and collector roads in the township. Driveways are often too close together. Decreasing the number of driveways and increasing their spacing can increase safety and traffic flow.

Many businesses along North Ridge Road/US 20, Hubbard Road/OH 528, Main Street/OH 84 and River Street/OH 528 have two or more driveways. Business owners sometimes believe multiple driveways offer easier, more convenient access to potential customers. However, they increase the number of conflict points along the road, and reduce the spacing between driveways. Redundant driveways increase points where traffic can back up and accidents can occur.

Reasonable spacing between driveways is also important to the safety and capacity of a road, and the appearance of a corridor. Managing driveway spacing is essential on roads intended for higher speeds, such as North Ridge Road. At higher speeds drivers have less time and distance to react to unexpected situations. In most access management regulations, the minimum distance between driveways increases, based on the classification, design speed, and traffic volume of the road.

Driveway number and spacing for commercial should be regulated by the zoning code parking area standards. Required shared access, discussed later in this section, can also help fix problems with closely spaced and redundant driveways.

Encouraging common driveways for residential uses can reduce the number of access points on collector roads and arterials. It can also protect the semi-rural character of developing areas by making development further from a main road possible, thus reducing visual impact on the roadscape. This also has the effect of making building sites more private. Lots can be platted with more flexibly, and "bowling alley" frontage lots can be avoided, resulting in larger side yards and increased spacing between houses.

A common drive can either be permanent access easements or tracts dedicated for use as private roads. Ohio state law gives developers the right to build private streets. State law does not prohibit access easements. Covenants address maintenance of shared driveways; grading, plowing, patching and so on, along with fees.

CORNER CLEARANCE

Corner clearance is the distance from an intersection to the nearest driveway. Corner clearance standards, and restrictions on driveways in acceleration, deceleration and right turn lanes, preserve good traffic operations at intersections, and the safety and convenience of access to corner properties. Having a larger minimum lot size requirement for corner lots will protect the development potential and market value of corner properties. It will also help assure that these properties do not experience access problems as traffic volumes grow.

JOINT AND CROSS ACCESS

Few businesses have shared or cross-access driveways. Their use can reduce the number of driveways accessing the road, and also cut the amount of short vehicle trips on the road.

Joint and cross access involves connecting neighboring properties, and consolidating driveways serving more than one property. This allows vehicles to circulate between adjacent businesses without having to re-enter the road. Joint access is also used to connect major developments, reduce the number of driveways, and increase driveway spacing where highway frontage has been subdivided into small lots. This allows more intensive

development of a corridor, while maintaining traffic operations and safe and convenient access to businesses.

In many communities, larger parcels are often developed as a unified site, with joint and cross access planned from the start, even if the site will be subdivided into several commercial lots. In Madison Township, land along collector arterial roads is often subdivided and developed incrementally over a long period, with no unified plan for a site. Each of the resulting lots is developed individually, with no coordination of access.

One way that joint access can be implemented is by prohibiting direct access to an arterial or collector road from outparcels and lots that are carved from larger lots. Instead, the owner of the original parcel must provide access rights from the old lot to the new. If the original host lot is not immediately developed, the developer of the newer lot may be allowed a temporary driveway, which would be closed when the original lot is developed. The easement or access agreement is recorded with the property records, along with a joint maintenance agreement, and an agreement to close the temporary driveway when the joint access system is complete. As an alternative, property owners can also be required to create a binding joint access and cross easement plan before subdividing their property.

For new development on new and existing lots, access rights and stub-out drive aisles to adjacent parcels would be required by zoning resolution parking requirements, along with the appropriate access easements and/or agreements. For lots that are developed, creating stub-out driveways and recording access easements and/or agreements would be required if the business or use on the property changed, or as a condition of a building permit for major expansion or renovation.

Because access is shared, it will also be easier to share parking areas. The zoning code should be amended to allow reduced a lower number of parking spaces for a use if access is shared.

MEDIANS

There are no medians along any roads in the Township. Medians can control the location and reduce the number of left-hand turn points, and eliminate congestion caused by stopped cars turning from the passing lane.

Raised or grassy medians in the center of a road separate opposing lanes of traffic and restrict turning and crossing movements. Studies from around the nation show that roads with raised medians are safer than those with undivided thoroughfares or center two-way left turn lanes, where traffic is far less predictable, and left hand turns can create accident- and congestion-prone conflict points.

As with driveways, the spacing and design of median openings is important to the safe and efficient operation of the road. Safety benefits are reduced where median openings have inadequate storage – the length of the stacking area for cars waiting to turn – or are too close together, increasing the number of conflict points.

Medians also provide a refuge for pedestrians and bicyclists crossing a road, and can provide visual appeal and relief if they are landscaped. Considering the importance of the nursery industry in the Township, landscaped medians can help reinforce a unique “sense of place” by showcasing the products of area nurseries. Some communities have “adopt-a-median” programs, where a small sponsorship sign is displayed to identify a business or group that paid to landscape and maintain a stretch of median.

When Hubbard Road/Lake Street/OH 528 is upgraded, this plan recommends using a landscaped median instead of a continuous center turn lane to divide opposing lanes of traffic.

POSSIBLE BUSINESS CONCERNS

Businesspeople may object to access management because they believe it makes access less convenient for impulse customers and delivery vehicles. However, it has no effect on the demand for products and services they offer. Studies show access management generally does not harm local businesses.

Local businesses that depend upon drive-by traffic may raise concerns that their patronage will be hurt by medians and driveway limitations. Others may claim they will be affected because customers and delivery vehicles will find it less convenient turning into a dedicated driveway, rather than just pulling off the road into a parking lot with a continuous curb cut.

Several studies were conducted in the 1990s to find the potential economic effects of access management. Most studies have focused on business owner perceptions of impacts, before and after case examples, or generalized comparisons of business activity across corridors.

The Texas Department of Transportation conducted a study of the economic impacts of left-turn restrictions in the mid-1990s. Key findings included the following:

- Perceptions of business owners before a median was installed were more pessimistic than what usually happened.
- Business owners reported no change in pass-by traffic after median installations.
- Most business types (including specialty retail, fast-food restaurants and sit-down restaurants) reported increases in numbers of customers per day and gross sales, except for gas stations and auto repair shops, which reported decreases in the numbers of customers per day and gross sales.
- Most adverse economic impacts were realized during the construction phase of the median installations.
- Employment within the corridors experienced upward trends overall, with some exceptions during construction phases.
- When asked what factors were important to attracting customers, business owners generally ranked “accessibility to store” lower than customer service, product quality and product price, and ahead of store hours and distance to travel.
- About 94% of business owners reported that their regular customers were at least as likely or more likely to continue patronizing their business after the median installation.
- Along corridors where property values were studied, the vast majority of land values stayed the same or increased, with very few exceptions.

Iowa State University conducted a statewide study of the effects of access management on business vitality in 1996. Results showed that:

- Corridors with completed access management projects performed better in terms of retail sales than the surrounding communities. Business failure rates along access managed corridors were at or below the statewide average for Iowa. Although this suggests that access management projects generally did not have an adverse effect on the majority of businesses, some businesses may have been negatively impacted.
- 80% of businesses surveyed along access managed corridors reported sales at least as high after the project was in place. Relatively few businesses reported sales declines associated with the access management project, although these business owners felt that they were hurt by the project. The firms perceiving negative impacts were a mixture of business types.
- Similarly, about 80% of businesses reported no customer complaints about access to their businesses after project completion. Those businesses that tended to report most complaints were highly oriented toward automobile traffic.

- In all cases, 90% to 100% of motorists surveyed had a favorable opinion of improvements made to roadways that involve access management. The vast majority of motorists thought that the improved roadways were safer and that traffic flow had improved.

Although several studies assessed the potential economic damage from access management, none have examined the potential long-term economic benefits.

Poorly designed access not only hurts the character and efficiency of a corridor, but also its economic vitality over time. Property values that have increased rapidly during commercial development tend to decline after the area is built out, if the character and efficiency of the corridor is hurt in the process. The result is a pattern of disinvestment as successful businesses choose other, higher quality locations. (Studies compiled in Economic Impacts of Access Management, Kristine M. Williams, AICP, Center for Urban Transportation Research, University of South Florida, 2000.)

5.6 Public transportation

Laketran, the public transit agency serving Lake County, operates a Dial-a-Ride service. The service offers door-to-door, assisted transportation for all Lake County residents, including those in Madison Township. Dial-a-Ride picks up users at their homes, and drops them off at work, medical appointments, or any other destination in Lake County. It also provides transportation to medical appointments at Euclid Hospital, University Hospital's Euclid Health Center, Euclid Medical Plaza, Richmond Medical Center, University Hospitals and Cleveland Clinic in Cuyahoga County.

Dial-a-Ride is not intended for regular commuters, but rather for senior citizens and the physically disabled. It can be used as temporary transportation for those whose vehicles have broken down.

Laketran route 4 (Painesville-Madison) operates on North Ridge Road/US 20 through Madison Township, terminating in North Madison. Service is sparse, with three westbound buses and two eastbound buses on weekdays only. Route 11 provides commuter service to Lakeland Community College and downtown Cleveland from a large, lushly landscaped park-and-ride facility on Water Tower Drive in Madison Village. There are two buses in each direction on weekdays, and no weekend service. The Laketran Transit Plan shows no plans to extend fixed route bus lines into the Township. The low population density and scattered development makes fixed route public transit service impractical and very costly. Buses that could serve Madison Township would find heavier use on an existing or new route in a more urbanized part of the Laketran service area. Service may be feasible if a route is connected to Madison Village to service the senior center, YMCA, post office and downtown business area.

5.7 Goals and policies

Each primary paragraph (in bold type) is a statement of a goal. The subparagraphs are policies for implementing the goal. Some goals and policies related to land use are found in other elements.

Each primary paragraph **(in bold type)** is a statement of a goal. The subparagraphs are policies for implementing the goal. Transportation-related policies related to the North Ridge Road/US 20 corridor are found in the US 20 Corridor Plan.

TR-1 The transportation network should reflect the desired character of the area where it is built.

TR-1-p1 Continue gradual improvement of roads in the township. Improvements to collector and local roads should be performed to benefit area residents, not to encourage through traffic from outside the community, or promote land development.

TR-1-p2 Connect the eastern end of R.W. Parkway to Bates Road.

TR-1-P3 Extend Bates Road from Middle Ridge Road to North Ridge Road/US 20, where it will meet Bennett Road. Require developers to build sections of an extended Bates Road in conjunction with subdivision activity or a larger planned community along its planned route. Bates Road should be extended only when a portion of State Route 528 north of Madison Village is declared congested by the NOACA congestion management system.

TR-1-P4 Extend Dayton Road from Middle Ridge Road to North Ridge Road/US 20, where it will meet Green Road. Require developers to build sections of an extended Dayton Road in conjunction with subdivision activity or a larger planned community along its planned route. Dayton Road should be extended only when a portion of State Route 528 north of Madison Village is declared congested by the NOACA congestion management system.

TR-1-P4 Create east – west connector parallel to Route 20 on the north side in between Green Road and Hubbard.

TR-1-p5 Realign Wood Road to meet McMackin Road at Middle Ridge Road when traffic volume and safety issues warrant the improvement.

TR-1-p6 Realign Arcola Road to meet Dock Road at North Ridge Road when traffic volume and safety issues warrant the improvement.

TR-1-P7 Require developers and subdividers to dedicate right-of-way and construct portions of proposed collector roads and extensions that cross or touch their property.

TR-1-P8 Prohibit lot division or development that would prevent the planned extension of a collector or arterial road past its terminus.

TR-1-P9 Discourage public funding of road extensions where the intent includes promotion of speculative development or conversion of productive agricultural land to residential use.

TR-1-P10 Consider the use of roundabouts as an alternative to traffic signals and four-way stops on collector and arterial roads (excluding North Ridge Road/US 20).

TR-1-p11 Maintain low design speeds along collector roads when they are reconstructed, to reduce effects of increased traffic. Control speed through non-vertical traffic calming techniques, such as increased tree cover over a road, roundabouts, curbline projection, and varying the path of the travel surface in the right-of-way

TR-2 Access management will be used to control and limit access to roads in the township.

TR-2-p1 Work with the Lake County Engineer and Planning Commission in creating and implementing an access management policy. Requirements should include prohibition of continuous curb cuts, spacing of curb cuts along a road and from intersections, limiting number of curb cuts on a road based on lot width and use intensity, limiting driveway width, reducing conflicts between pedestrians and access drives, required shared driveways where feasible, requiring connections between parking lots on adjacent properties, internal access to outparcels, and eventual retrofitting and elimination of continuous and nonconforming curb cuts.

TR-2-p2 Permit shared access driveways and private roads for residential development and uses. Access management requirements for residential areas should also control spacing of driveways along a road, and dimensional, geometry and maintenance standards for private roads.

TR-2-p3 Consider increasing the minimum lot frontage for residential lots fronting on arterial and collector streets, and establishing a lot width-to-depth ratio.

TR-3 Transportation networks will accommodate pedestrians and non-motorized transportation.

TR-3-p1 Accommodate bicycles by including clearly marked lanes on new and reconstructed collector and arterial roads.

TR-3-p2 Respect the right of pedestrians and bicyclists to safely share roads with motor vehicles.

TR-4 Public transportation will remain an option for township residents.

TR-4-p1 Work with Laketran to ensure Dial-A-Ride and commuter bus service continues to provide quality service in the township. Promote Dial-A-Ride as a transportation option for senior citizens and the mobility-impaired.

TR-4-p2 Examine the feasibility of a Madison Circulator as retail development continue in the Village and Township.